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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,028	11/04/2003	Tim Bianchi	N2215-84536	6162
32009 7590 11/01/2007 BRADLEY ARANT ROSE & WHITE LLP 200 CLINTON AVE. WEST SUITE 900 HUNTSVILLE, AL 35801			EXAMINER DANG, HUNG Q	
			ART UNIT 2612	PAPER NUMBER
			MAIL DATE 11/01/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/701,028

Applicant(s)

BIANCHI ET AL.

Examiner

Hung Q. Dang

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 8/8/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) ✓  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This communication is in response to application's amendment dated 8/8/2007. The amendment of claims 1, 20, 23, 28 and 40 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-19 and 21-40 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Emerson et al. U.S. Patent 4,348,730.

**Regarding claims 1 and 7**, Gray et al. teaches an apparatus for monitoring a meter, comprising:

A meter (Figure 1, unit 8) that monitor usage of a distribution system;

An electronic data recorder (Figure 1, unit 6) that processes data from the meter;

An external unit (Figure 1, unit 4) that controls the processing of data in the electronic data recorder with a communication protocol; and wherein the communication protocol comprises an initialization signal and a clock signal (Figure 2a).

However, Gray et al. does not specifically teach an interval identification signal that identifies a present reading cycle for the data from the meter with a unique signal width of the interval identification signal.

Emerson et al., in the same field of endeavor, teaches an apparatus for monitoring a meter, wherein the communication protocol comprises an interval identification signal that identifies a present reading cycle for the data from the meter with a unique signal width of the interval identification signal for accurately identifying the desired metering data interval (according to the specification of this application (see paragraph [0037]), the claimed time interval identification signal is a signal that is used to indicate a metering data reading time interval, such as 15 min. or 30 min. In figure 2 and columns 3-4 and column 4 lines 55-60 of Emerson; the time interval indicated in figure 2 and the indicated columns show the desired signal width, which is used for indicating a desired time interval).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such interval identification signal to the apparatus disclosed by Gray et al., as evidenced by Emerson et al., so that a metering data interval can be accurately identified.

**Regarding claim 2**, the meter disclosed by Gray et al. is also a utility meter (Figure 1, unit 8; and abstract).

**Regarding claim 3**, Gray et al. also teaches a water meter (column 1, lines 40-45).

**Regarding claim 8**, even though Gray et al. does not specifically disclose an initialization signal is between 25 and 100 ms in duration, however, one skilled in the art would recognize that such duration could be easily achieved by one skilled practitioner through routine experimentations to achieve desired result. Therefore, it would have been obvious to one skilled in the art to provide such duration to the initialization signal disclosed by Gray et al, as desired (see evidence in the "response to argument" above).

**Claims 9-12** are rejected for the same reasons as the rejection claim 8 (see evidence in the "response to argument" above).

5. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Emerson et al. U.S. Patent 4,348,730 and in further view of Dlugos et al. U.S. Patent 6,191,687.

**Regarding claims 4-6**, Gray et al. in view of Emerson et al. teaches the apparatus of claim 3, **except** wherein the water meter is self-powered. One skilled in the art would recognize that utility meters have been conventionally designed as self-powered, as evidenced by Dlugos et al. (column 1 lines 35-42 and paragraph bridging columns 1-2; Wiegand wire is self-powered generated by the rotation of at least one magnet coupled to a valve of a meter, wherein the valves rotates upon the occurrence of a flow through the meter). Therefore, by conventionality, it would have been obvious

to one skilled in the art at the time the invention was made to equip the meter disclosed by Gray et al. in view of Emerson et al. as self-powered, as evidenced by Dlugos et al.

6. Claims 13-16, 23, 28-32, 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Emerson et al. U.S. Patent 4,348,730 and in further view of Furnidge et al. U.S. Patent 6,952,970.

**Regarding claims 13-16**, Gray et al. in view of Emerson et al. teaches the apparatus as claimed in claim 1, **except** wherein the electronic data recorder processes data from the meter to detect a leak in the distribution system.

Furnidge et al., in the same field of endeavor, teaches utility meter system, which includes detecting a continuous leak in a distribution system (column 5, lines 31-41; intermittent leak occurs when the LEAK-TIME does not exceed MAX-LEAK-TIME).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide A continuous/intermittent leak detection in the distribution system disclosed by Gray et al. in view of Emerson et al., as evidenced by Furnidge et al., in order to detect leak in a distribution system.

**Claim 23** is rejected for the same reasons as the rejections of claims 1 and 13.

**Claims 28, 31, 32 and 40** are rejected for the same reasons as the rejections of claims 1 and 13. The predefined condition(s) in this case is the leak detection.

**Regarding claims 29-30**, since the specification of this application does not specifically disclose what the claimed **levels of magnitude** of the predefined conditions are; examiner interprets the claimed "levels of magnitude" are the amount of water

usage, water flow rate, leaking period etc. Examiner takes official notice that the levels of magnitude of such predefined conditions have been conventionally detected and monitored in water utility distribution system. Therefore, by conventionality, it would have been obvious to one skilled in the art at the time the invention was made to provide monitoring levels of magnitude of such conditions of the method disclosed by Gray et al. in view of Emerson et al. and of Furmidge et al.

**Regarding claim 37**, the meter disclosed by Gray et al. is can also be a water meter (column 1, lines 35-47).

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Emerson et al. U.S. Patent 4,348,730 and in further view of Jepson et al. U.S. Patent 4,938,053.

**Regarding claim 17**, Gray et al. in view of Emerson et al. teaches the apparatus of claim 17, **except** determining the flow rate in the distribution system.

One skilled in the art would recognize that conventional water/fluid metering systems have been equipped with the capability for measuring flow rate, as evidenced by Jepson et al.

Jepson et al., in the same field of endeavor, teaches metering system, which includes measuring the fluid flow rate of said system (column 4, lines 19-24).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide measuring the flow rate of the system disclosed by Gray

et al. in view of Emerson et al., as evidenced by Jepson et al., in order to measure the flow rate of the liquid/water in said system.

8. Claims 24 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Emerson et al. U.S. Patent 4,348,730 and Furmidge et al. U.S. Patent 6,952,970 and in further view of Jepson et al. U.S. Patent 4,938,053.

**Regarding claim 24**, Gray et al. in view of Emerson et al. and Furmidge et al. teaches the apparatus of claim 24, **except** determining the flow rate in the distribution system.

One skilled in the art would recognize that conventional water/fluid metering systems have been equipped with the capability for measuring flow rate, as evidenced by Jepson et al.

Jepson et al., in the same field of endeavor, teaches metering system, which includes measuring the fluid flow rate of said system (column 4, lines 19-24).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide measuring the flow rate of the system disclosed by Gray et al. in view of Emerson et al. and Furmidge et al., as evidenced by Jepson et al., in order to measure the flow rate of the liquid/water in said system.

**Claim 33** is rejected for the same reasons as the rejection of claim 24.

9. Claims 25-27 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Emerson et al. U.S. Patent 4,348,730 and Furnidge et al. U.S. Patent 6,952,970 and in further view of Holowick U.S. Patent 6,755,148.

**Regarding claim 27**, Gray et al. in view of Emerson et al. and Furnidge et al. teaches an apparatus of claim 27, except detecting backflow in said distribution system.

Holowick, in the same field of endeavor, teaches a system for monitoring a utility meter, which implicitly suggests detecting backflow of water in said distribution system (column 1 lines 43-50 and column 2, lines 20-27); in order to achieve accurate water consumption readings.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide water backflow detection to the distribution system disclosed by Gray et al. in view of Emerson et al. and Furnidge et al., as evidenced by Holowick, in order to achieve accurate water consumption readings.

**Claims 25 and 34** are rejected for the same reasons as the rejection of claim 27 (the direction of flow in this case is backflow).

**Regarding claim 26**, the meter disclosed by Holowick can also detect an absence of a flow in a distribution system (column 3 lines 1-30 shows that the "sweep-hand 18" can be used for tracking the quantity of water consumption as water flow forward or backward through the meter; therefore, if no water is being consumed or no water flows in either direction through the meter, then the "sweep-hand 18" would not rotate, which would mean that an absence of a flow can be detected).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide detecting an absence of a flow in the water distribution system disclosed by Gray et al. in view of Emerson et al. and Furnidge et al., as evidenced by Holowick, so that an absence of a flow can be detected and monitored.

**Claim 35** is rejected for the same reasons as the rejection of claim 26.

**Claim 36** is rejected for the same reasons as the rejection of claim 27.

10. Claims 18, 19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Emerson et al. U.S. Patent 4,348,730 and in further view of Holowick U.S. Patent 6,755,148.

**Regarding claims 21 and 22**, Gray et al. in view of Emerson et al. teaches an apparatus of claim 21, except detecting backflow in said distribution system.

Holowick, in the same field of endeavor, teaches a system for monitoring a utility meter, which suggests detecting backflow of water in said distribution system (column 1 lines 43-50 and column 2, lines 20-27; and column 3 lines 1-30; column 4 lines 10-12), in order to achieve accurate water consumption readings.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide water backflow detection to the distribution system disclosed by Gray et al. and Emerson et al., as evidenced by Holowick, in order to achieve accurate water consumption readings.

**Claim 18** is rejected for the same reasons as the rejection of claim 21 (the direction of flow in this case is backflow).

**Regarding claim 19**, the meter disclosed by Holowick can also detect an absence of a flow in a distribution system (column 3 lines 1-30 shows that the "sweep-hand 18" can be used for tracking the quantity of water consumption as water flow forward or backward through the meter; therefore, if no water is being consumed or no water flows in either direction through the meter, then the "sweep-hand 18" would not rotate, which would mean that an absence of a flow can be detected). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide detecting an absence of a flow in the water distribution system disclosed by Gray et al. in view of Emerson et al., as evidenced by Holowick, so that an absence of a flow can be detected and monitored.

11. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray et al. U.S. Patent 5,434,911 in view of Emerson et al. U.S. Patent 4,348,730 and Furmidge et al. U.S. Patent 6,952,970 and in further view of Dlugos et al. U.S. Patent 6,191,687.

**Regarding claims 38 and 39**, Gray et al. in view of Emerson et al. and Furmidge et al. teaches the method of claim 28, except wherein the water meter is self-powered. One skilled in the art would recognize that utility meters have been conventionally designed as self-powered, as evidenced by Dlugos et al. (column 1 lines 35-42 and paragraph bridging columns 1-2; Wiegand wire is self-powered generated by the rotation of at least one magnet coupled to a valve of a meter, wherein the valves rotates upon the occurrence of a flow through the meter). Therefore, by conventionality, it

would have been obvious to one skilled in the art at the time the invention was made to equip the meter disclosed by Gray et al. in view of Emerson et al. and Furmidge et al. as self-powered, as evidenced by Dlugos et al.

### ***Allowable Subject Matter***

12. Claim 20 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

**Regarding claim 20**, claim 20 has been rewritten into an independent form having the previously indicated allowable subject matter. Therefore, claim 20 is now allowed.

### **Conclusion**

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is (571) 272-3069. The examiner can normally be reached on 9:30AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on (571) 272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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10/26/2007  
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